

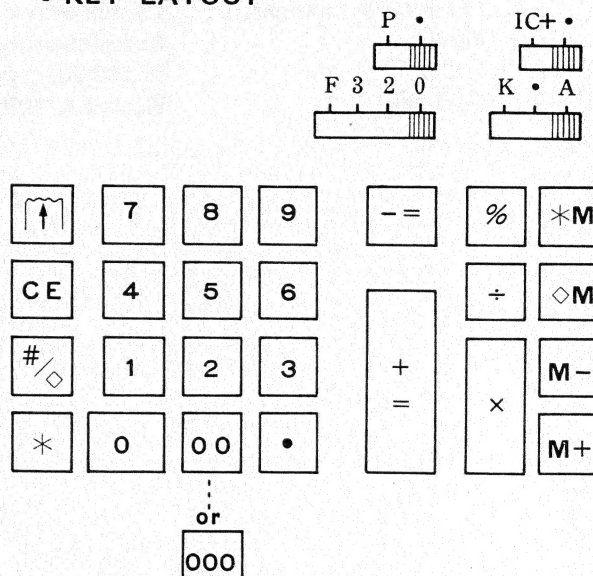
# SHARP SERVICE MANUAL



**MODEL EL-2168S(A)**

## 1. SPECIFICATIONS

### • KEY LAYOUT

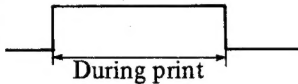


DISPLAY SECTION				KEY SYSTEM		SSSR Key	
				POWER SUPPLY			
				Battery & Type			
Element				Operation time			
Parts name		13BT71A					
NUMERAL	Digit	12					
	Punctuation	Yes					
SYMBOL	Digit	1					
	Battery indicator						
LSI		SC38455LR (54pins, Flat package)					
MEMORY		1					
CALCULATIONS							
Four arithmetic claculation, Constant calculation, Power calculation, Reciprocal calculation, Chain calculation, % calculation, Add-on (discount) calculation, Item count function							
DIMENSIONS		186(W) × 227(D) × 51(H) mm					
OTHERS		Printer: M720					

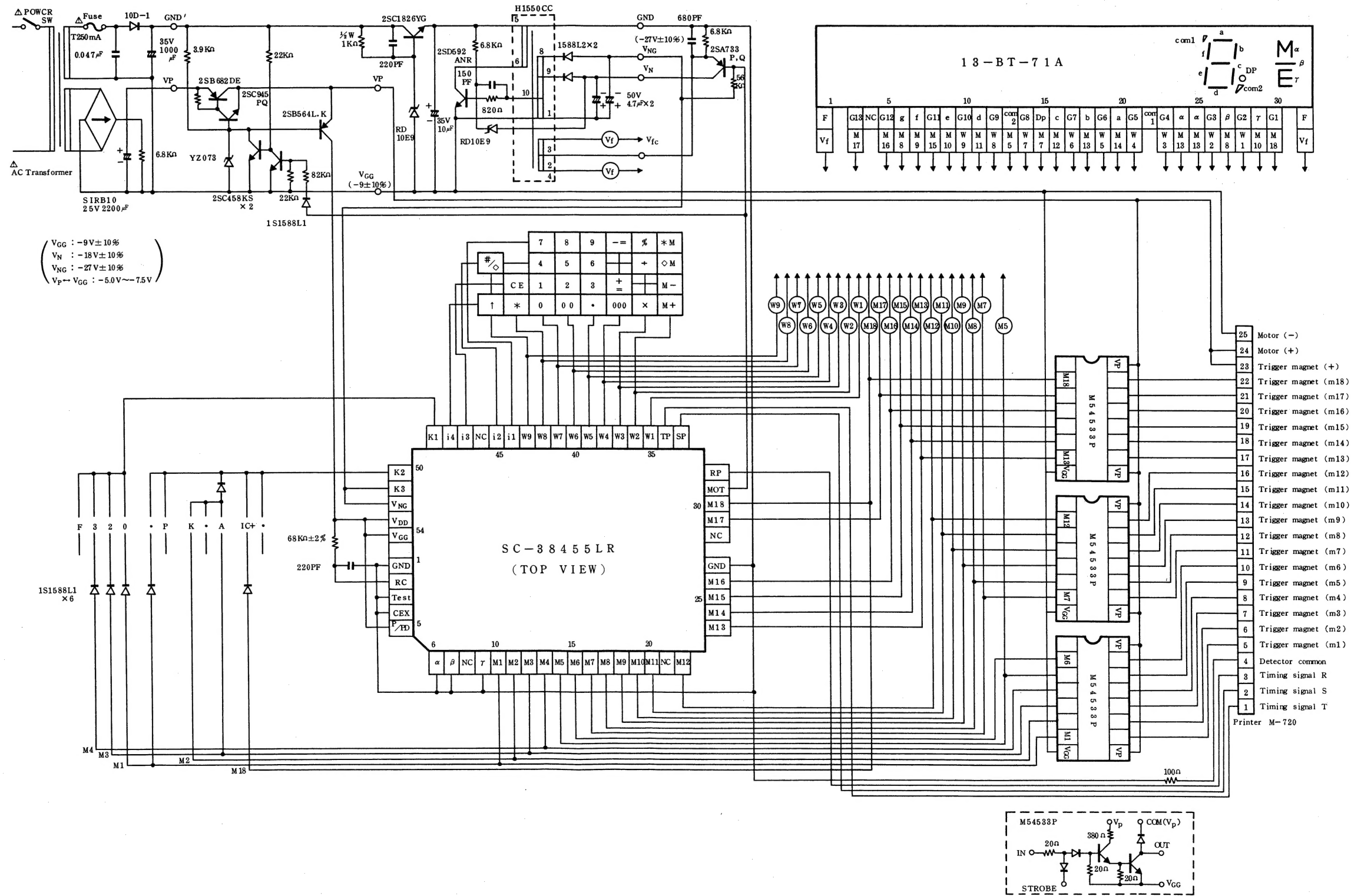
**Printer**

Printer model:	M720
Printing system:	Print wheel selective type
Print speed:	Approx. 2.5 line/1 second
Print column capacity:	18 columns
Character spacing:	Column spacing ..... 2.9 mm Line spacing ..... 5.5 mm
Character demensions:	1.4 mm wide x 2.4 mm high (max.)
Paper:	Roll of paper type 57.5±0.5 mm (wide) x 80 mm (outside diameter) max.
Ink roller:	Black, EA720R

## 2. LSI (SC-38455LR) SIGNALS

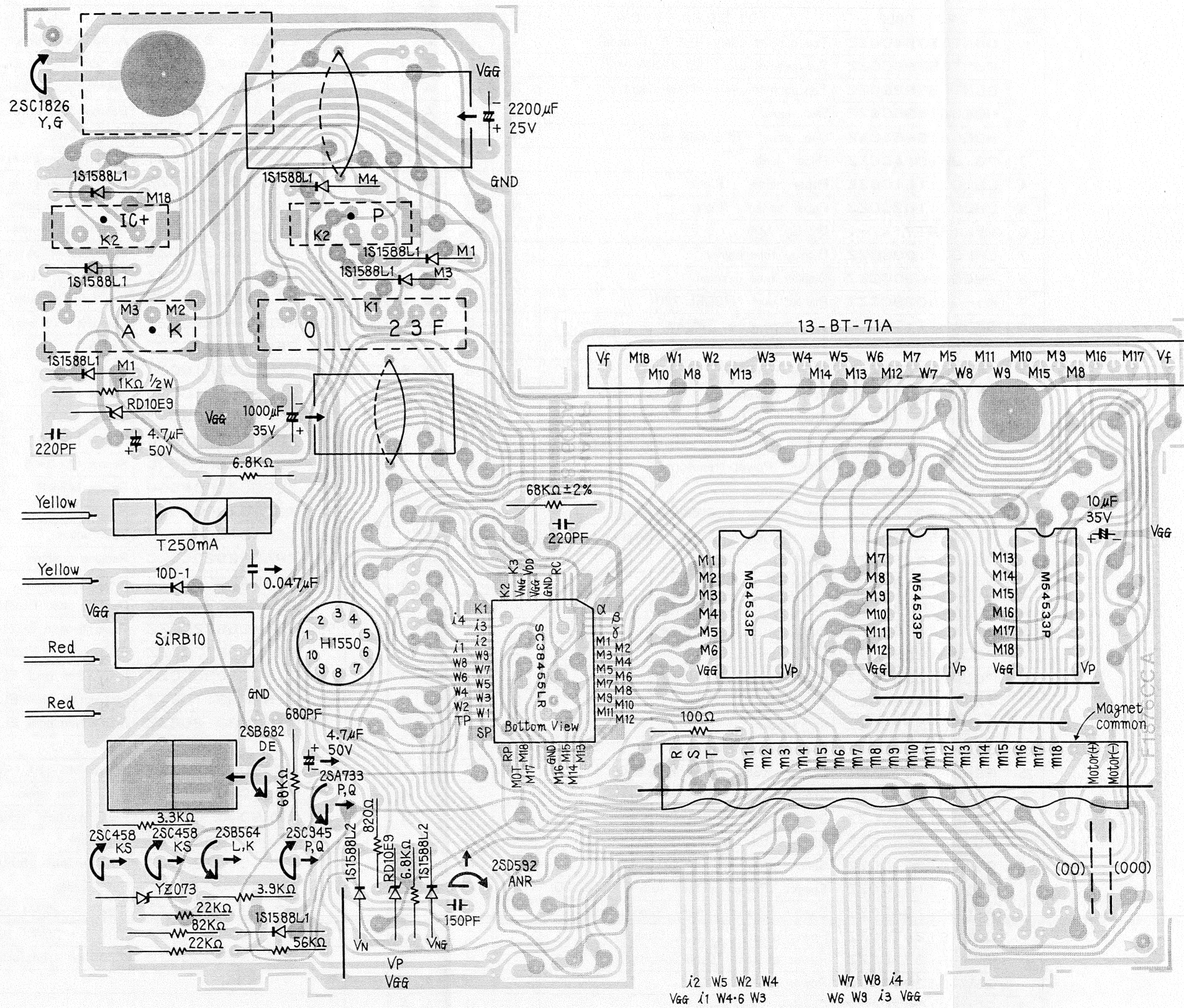
NO.	Signal	In/Out	Description
1	GND	In	Power supply voltage 0V
2	RC	In	Basic clock control signal
3	Test	}	No use
4	CPX		
5	P/PD		
6	$\alpha$		
7	$\beta$		
8	N.C		
9	$\gamma$		
10 30	M1 M18	Out	<ul style="list-style-type: none"> <li>• Trigger magnet of printer drive signal</li> <li>• Display grid or segment signal</li> </ul>
31	MOT	Out	Printer motor drive signal 
32	RP	In	Timing signal R (Printer)
33	SP	In	Timing signal S (Printer)
34	TP	In	Timing signal T (Printer)
35 43	W1 W9	Out	<ul style="list-style-type: none"> <li>• Display grid signal</li> <li>• Key strobe signal</li> </ul>
44 48	i1 i4	In	Key input signal
49	K1	In	TAB switch input signal
50	K2	In	Slide switch input signal

3. CIRCUIT DIAGRAM





#### 4. PARTS & SIGNALS POSITION





## 5. PARTS LIST & GUIDE

NO.	PARTS CODE	DESCRIPTION	NEW MARK	PARTS RANK	PRICE RANK
1	DUNTG5794CCZZ	Top cabinet ass'y (U.S.A, Canada)	N	D	A T
	DUNTG5796CCZZ	Top cabinet ass'y (EL2168A...KV)	N	D	A S
	DUNTG5792CCZZ	Top cabinet ass'y (Other country)	N	D	A R
2	HDECA1835CCZZ	Dec. panel	N	D	A D
	HDECA1845CCZZ	Dec. panel (EL2168A...KV)	N	D	A D
3	PGiDW1014CCZZ	Paper guide		C	A C
4	LHLDZ1161CCZZ	Paper holder (Right)	N	B	A C
5	LHLDZ1162CCZZ	Paper holder (Left)	N	B	A C
6	VVK13BT71A/-I	Display tube		B	B A
7	LHLDZ1100CCZZ	Display tube holder		C	A C
8	PHOG-1060CCZZ	Display tube cushion		C	A A
9	Ki-OB0039CCZZ	Printer unit MODEL 720		E	B Q
10	QCNW-1117CCZZ	Tape type wire (25pins)		C	A F
11	MSPRC1045CCZZ	Earth spring		C	A A
12	RTRNP1546CCZZ	Power transformer (120V)		B	A S
	RTRNP1547CCZZ	Power transformer (240V) KA, KB		B	A W
	RTRNP1548CCZZ	Power transformer (220V) <sup>KV</sup> (with thermo fuse)		B	A V
	RTRNP1549CCZZ	Power transformer <sup>SB, SC, SE, SH, SL, SM</sup> (110-200-220-240V)		B	A V
13	LANGT1267CCZZ	Angle (Power transformer)		C	A C
14	LFRM-1057CCZZ	Key frame		C	A G
15	DUNT-5317CCZZ	Key top set EL2168S (00key)		C	A L
	DUNT-5823CCZZ	Key top set EL2168A (000key)		C	A L
16	PGiDW1017CCZZ	Guide pin (X key)		C	A A
17	PGiDW1018CCZZ	Guide pin (± key)		C	A A
18	LFIX-1073CCZZ	Guide pin stopper (X key)		C	A A
19	LFIX-1075CCZZ	Guide pin stopper (± key)		C	A A
20	PGUMMI255CCZZ	Rubber spring		B	A G
21	PGUMMI256CCZZ	Rubber spring		B	A C
22	PZETL106BCCMC	Key sheet	N	A	A H
23	PZETL1377CCZZ	Key spacer	N	C	A B
24	LFIX-1076CCZZ	Fixing plate (key)		C	A E
25	PSLDP1133CCZZ	Spacer (Slide switch F, 3, 2, 0)		C	A A
26	PSLDP1141CCZZ	Spacer (Slide switch K, ., A)		C	A A
27	QSW-S1246CCZZ	Slide switch (F, 3, 2, 0)		B	A G
28	QSW-S1255CCZZ	Slide switch (P, .) (IC+, .)		B	A G
29	QSW-S1261CCZZ	Slide switch (K, ., A)		B	A G
30	PSLD-1104CCZZ	Spacer (Power switch) (U.S.A, Canada, SD)		C	A B
	PSLDP1134CCZZ	Spacer (Power switch) (Other country)		C	A B
31	QSW-S1247CCZZ	Power switch (U.S.A, Canada)		C	A E
	QSW-S1277CCZZ	Power switch (Other country)		B	A M
	QSW-S1200CCZZ	Power switch (SD)		B	A F
32	PCUSS1052CCZZ	Cushion (Key sheet)		C	A A

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NO.	PARTS CODE	DESCRIPTION	NEW MARK	PARTS RANK	PRICE RANK
33	LANGT1187CCZZ	Angle (Key sheet)		C	A B
34	GCABA2435CCZZ	Bottom cabinet EL2168S (U.S.A, Canada)	N	D	A P
	GCABA2433CCZZ	Bottom cabinet EL2168S (Other country)	N	D	A M
	GCABA2437CCZZ	Bottom cabinet EL2168A (KV)	N	D	A N
35	GLEGG1012CCZZ	Rubber foot		C	A A
36	TSPC-2354CCNI	Specification panel (Canada)	N	C	A C
	TSPC-2355CCZZ	Specification panel (KA)	N	C	A C
	TSPC-2356CCZZ	Specification panel (KB)	N	C	A C
	TSPC-2376CCNI	Specification panel (Other country)	N	C	A C
	TSPC-2357CCZZ	Specification panel EL-2168A (KV)	N	C	A C
37	LHLDWI152CCZZ	Cord holder EL-2168A (KV)		C	A B
38	PFLT-1035CCZZ	Key felt (± key)		C	A A
39	PFLT-1026CCZZ	Key felt (X key)		C	A A
40	PFLT-1027CCZZ	Key felt (Okey)		C	A A
41	XUSSC30P10000	Screw M3×10 (Top cabinet)		C	A A
42	XUPSD30P10000	Screw M3×10 (P, trans, Angle)		C	A A
43	XUPSC26P08000	Screw M2.6×8 (Bottom cabinet)		C	A A
44	XBPSD30P06000	Screw M3×6 (Cord holder, Key plate)		C	A A
45	XUPSC26P06000	Screw M2.6×6 (Specification panel)		C	A A
46	XUPSD30P08000	Screw M3×8 (Key plate)		C	A A
47	XBPSD20P04000	Screw M2×4 (Key sheet angle)		C	A A
48	GCÖVD1254CCZZ	Dust cover		D	A G
49	SPAKA2923CCZZ	Packing cushion		D	A F
50	SPAKA2924CCZZ	Packing cushion		D	A C
51	SPAKC5670CCZZ	Packing case EL2168S (U.S.A)	N	D	A H
	SPAKC5672CCZZ	Packing case EL2168S (Other country)	N	D	A H
	SPAKC5813CCZZ	Packing case EL2168A (KV)	N	D	A H
52	TiNSE3038CCZZ	Instruction book EL2168S (English)	N	D	A D
	TiNSM3011CCZZ	Instruction book EL2168S (E, F, G, S)	N	D	A Z
	TiNSM3012CCZZ	Instruction book EL2168A (E, F, G, S)	N	D	A K
	XBPSD30P10000	Screw M3×10 (Heat sink)		C	A A
	XNESD30-24000	Nut (Heat sink)		C	A A
	XWHS40-08100	Plane washer (Heat sink)		C	A A
	PRDAFI024CCZZ	Heat sink		C	A C
	QFS-C1028CCZZ	Fuse 250mA 250VAC		A	A E
	QFSHA1002CCZZ	Fuse holder		C	A B
	RC-EZ1029CCZZ	Capacitor 25WV 2200μF		C	A G
	RC-EZ1030CCZZ	Capacitor 35WV 1000μF		C	A F
	RTRNH1550CCZZ	Converter transformer		C	A F

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	NO.	PARTS CODE	DESCRIPTION	NEW PARTS	PRICE RANK
△	1	QACCJ1411QCZZ	AC cord (SC, SD)		A K
△	2	QACCD1010CCZZ	AC cord (U. S. A, Ganda)		A H
△	3	QACCL1018CCZZ	AC cord (KA, SL)		A R
		QCNW-1035CCZZ	Cord cable (KB, SM)		A L
△	4	QPLGA0005YBEO	Plug (KB, SM)		A N
		QFS-C1041CCZZ	Fuse 3A (KB, SM)		A C
△	5	QACCK1012CCZZ	AC cord (KV, SB)		A N
		QCNW-1035CCZZ	Cord cable (SE)		A L
△	6	QPLGA4501CCZZ	Plug (SE)		A K
		QCNW-1035CCZZ	Cord cable (SH)		A L
△	7	QPLGA0018WREO	Plug (SH)	N	A N
		PHOG-1023CCZZ	Plug protector (SH)		A B

	Voltage(V)	Type of plug	Country
K A	240	Square (NSW) 3-pin	Australia
K B	240	BS 3-pin	England
K V	220	Square (SEV) 3-pin	Switzerland, Germany, Finland, Sweden, Norway, Denmark
S A	100	Flat 2-p	Japan, Korea
S B	110	Square 2-p	(Brazil), (Lebanon), (Saudi Arabia), (Bolivia), (Cameroun), (Senegal)
S C	110	Flat 2-p	Taiwan, Jamaica, Liberia, (Guam)
S D	120	Flat 2-p	Republic of Panama, El Salvador, Trinidad and Tobago, Colombia, Nicaragua, Venezuela, Mexico, Bermuda, Costa-Rica, Dominica, Ecuador, Guyana, Guatemala, Barbados
S E	200	Round 3-p	Hong Kong
S F	220	Round 2-p	(Thailand)
S G	220	Square 2-p	Rumania, Spain, Turkey, U.S.S.R, Yugoslavia, Argentina, (Bolivia), (Brazil), Austria, Belgium, Bulgaria, Czechoslovakia, France, Chile, Paraguay, Peru, Uruguay, French Guiana, Guadeloupe, Greece, Netherlands, Hungary Iceland, Italy, Poland, Portugal, Afghanistan, (Thailand), Burme, India, Indonesia, Iran, Iraq, Jordan, (Lebanon), Nepal, Pakistan, Qatar, (Saudi Arabia), Algeria, Dahomey Ethiopia, Ghana, Republic of the Ivory Coast, (Cameroun) Kenya, Malawi, Mali, Rwanda, (Senegal), Sudan, Togo, Tunisia, Yemen, Canary, Island, Bangladesh, Mozambique Libya, Congo, Angola, The United Arab Emirates, S.R. of Viet Nam
S H	220	Round 3-p	Republic of South Africa
S J	220	Flat 2-p	Philippines, Honduras, (Guam)
S K	240	Square 2-p	Cyprus, Gibraltar, Malta, Kuwait, Nigeria, Mauritius, Sierra Leone, Tanzania, Zambia, Uganda
S L	240	Square 3-p	Fiji, New Zealand
S M	240	Square 3-qp	Singapore, Malaysia



